

CLAIMS

1. An implantable surgical ring (1, 10) for surrounding one or more organs having a pouch or a duct, in order to modify the section of the passage in said organ(s), said ring (1, 10) being in the form of a flexible strap (2, 20) extending between first and second ends (3, 4, 40, 400), said flexible strap (2, 20) being provided towards its first and second ends (3, 4, 40, 400) with respective male and female closure elements (5, 50; 6, 60, 600) arranged to co-operate in such a manner that the flexible strap (2, 20) forms a closed loop, the female closure element (6, 60, 600) permanently forming a closed collar, the ring 5 being characterized in that said female element (6, 60, 600) includes a structural discontinuity (20, 200, 2000) in which the deformability of the female element (6, 60, 600) is greater than the deformability of the remainder of the female element (6, 60, 600).
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2. A ring (1, 10) according to claim 1, characterized in the female element (6, 60, 600) is arranged to pass reversibly between the closure configuration and the passage 15 configuration.
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3. A ring (1, 10) according to claim 1 or claim 2, characterized in that it includes locking/unlocking means (21A, 21B, 210A, 210B, 2100A, 2100B, 250, 250A, 250B, 20 250C) for locking/unlocking the female closure element (6, 60, 600) in its closure configuration.
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4. A ring (1, 10) according to claim 3, characterized in that the locking/unlocking means (21A, 21B, 210A, 210B, 2100A, 2100B, 250, 250A, 250B, 250C) are arranged to vary 25 between a locking position in which they inhibit the deformability of said structural discontinuity (20, 200, 2000), and an unlocking position in which they substantially release the female closure element (6, 60, 600) from any stress.
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5. A ring (1, 10) according to any one of claims 1 to 4, characterized in that the male element (5, 50) comprises at least first and second portions (7, 70; 8), with the section of the first portion (7, 70) being substantially greater than the section of the second portion (8), said male element (5, 50) being designed to have its first portion (7, 70) threaded through the female element (6, 60, 600) until the female element (6, 60, 600) co-operates with the second portion (8), which second portion is interposed between the first portion (7, 70) and the first end (3) of the flexible strap (2, 20).

10 6. A ring according to any one of claims 1 to 5, characterized in that the male element (5, 50) is substantially cylindrical in shape, said cylinder being provided with a groove set back from its periphery, said groove forming the second portion (8).

15 7. A ring (1, 10) according to any one of claims 1 to 6, characterized in that the female closure element (6, 60, 600) comprises a tube, said tube having a side wall (6A, 60A, 600A) defining said small opening (18, 180), said side wall (6A, 60A, 600A) being split by at least a first slot (22, 220, 2200A, 2200B, 2200C), such that said first slot (22, 220, 2200A, 2200B, 2200C) forms said structural discontinuity (20, 200, 2000).

20 8. A ring (1) according to claim 7, characterized in that the tube (6) is provided with a first pull-tab (23) arranged to make it easier to move the male element (7) and the tube (6) towards each other into co-operation, and/or easier to separate said male and female elements (7, 6) and to move them apart.

25 9. A ring (1) according to claim 8, characterized in that the first pull-tab (23) extends between an attachment end (23A) which is secured to the tube (6) and a free end (23B) for grasping, said first pull-tab (23) being split longitudinally by a second slot (24) over a fraction only of its length starting from its attachment end (23A), said first pull-tab (23) being attached to the tube (6) in the vicinity of the first slot (22) such that said first slot (22) is extended by the second slot (24), said first and second slots (22, 24) forming a single resultant slot (22, 24).

10. A ring (1) according to claim 8 or claim 9, characterized in that the first pull-tab (23) extends in a direction substantially parallel to the longitudinal direction of the side wall (6A) of the tube (6).

5 11. A ring (1) according to any one of claims 7 to 10 when dependent on claims 4 and 5, the ring being characterized in that the tube (6) extends longitudinally between first and second opposite faces (6B, 6C), the male element (7) being threaded through the female element (6) from the first face (6B) towards the second face (6C), the locking/unlocking means (21A, 21B) comprising a flexible band (25) attached locally to the flexible strap (2) and/or to the tube (6) in such a manner that said band (25) extends substantially in a plane situated in front of the second face (6C), and secondly a latching ridge (26) situated on the periphery of the tube (6) and formed by two half-ridges (26A, 26B) positioned on either side of the first slot (22), said band (25) being capable of being brought by elastic deformation into co-operation with said ridge (26) so as to lock the tube (6) in the closure configuration.

10 12. A ring (1) according to claim 11, characterized in that the band (25) is provided with a second pull-tab (27) arranged to enable the band (25) to be brought up to and to co-operate with the ridge (26), and/or to enable the band (25) to be separated from the ridge (26) and moved away therefrom.

15 13. A ring (1, 10) according to any preceding, characterized in that it includes a system (12, 13, 14, 15, 16, 17, 17A, 120, 130, 140, 150, 170) for reversibly controlling variation in its internal perimeter, said system comprising an elongate flexible element (12, 120) inserted longitudinally and slidably in the material forming the flexible strap (2, 20) substantially between its first and second ends (3; 4, 40, 400) so as to define a stationary portion (13, 130) secured to the second end (4, 40, 400) and a free portion (14, 140) functionary associated with an actuator (15, 150) mounted on the ring (1, 10) in such a manner that the actuator (15, 150) can cause the elongate flexible element (12, 120) to move reversibly in translation so as to obtain an associated change in the diameter of the ring (1, 10).

14. A ring (1, 10) according to claim 13, characterized in that the actuator (15, 150) is arranged on the flexible strap (2) in such a manner as to constitute and/or be included in the first portion (7, 70) of the male element (5, 50).
- 5 15. A ring (1, 10) according to any one of claims 1 to 14, characterized in that it constitutes a gastric ring (1, 10) for implanting around the stomach or the esophagus.
- 10 16. A ring (1, 10) according to any one of claims 1 to 14, characterized in that it is formed by a ring for implanting around the bladder or the urinary tract, or around the gastrointestinal tract, or around blood vessels.